S
351.8
B10r

STATE DOCUMENTS

TWENTY-SECOND ANNUAL REPORT

OF THE

STATE BOILER INSPECTOR

HELENA, MONTANA

1910

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

"INDEPENDENT PUBLISHING COMPANY, HELENA, MONTANA."

Montana State Library
3 0864 1005 0657 8

TWENTY-SECOND ANNUAL REPORT

OF THE

STATE BOILER INSPECTOR

HELENA, MONTANA

1910

"INDEPENDENT PUBLISHING COMPANY, HELENA, MONTANA."

Twenty-Second Annual Report.

Helena, Montana, December 1, 1910.

Hon. Edwin L. Norris, Governor of Montana, Helena, Mont.

Sir—In compliance with Section 1656 of the Revised Codes of Montana, I have the honor to submit herewith the twenty-second annual report of the Boiler Inspector's office of the State of Montana, the same being for the fiscal year ending November 30th, 1910.

Statements are appended setting forth all moneys collected within the year, the disbursements, the number of boilers inspected and the defects noted.

The work of this department is steadily increasing and the demands made on us during the past year have been very heavy. The entire force has been in the field during the year, and, but for very favorable weather conditions, it would have been impossible for us to have made as thorough a visitation of the state as we accomplished. The number of traction engines installed is constantly increasing, over three hundred additional traction engines having been brought into the state during the past year. As these were all new outfits we did not inspect them all during this season, but they will have to be inspected during the coming year and as many of them are located at long distances from the railroads it will take much time and labor and considerable expense to reach them. These, in addition to those already in the field, and also new stationary plants installed and old ones reopened, many of which are in remote districts, will necessitate much additional work, and in addition to these there will doubtless be many others installed during the coming season. Some idea of the steady growth of the work of this department can be obtained from the following table:

Year.	Inspectors.	Boilers Inspected,
1891	2	393
1892	2	338
1893	2	301
1894	2	431
1895	2	511
1896	2	606
1897	2	618
1898	2	642
1899	2	727
1900	2	679
1901	2	738
1902	2	867
1903	2	903
1904	2	982
1905	3	1306
1906	3	1474
1907	3	1559
1908	3	1772
1909	3	1734
1910	3	2021

The prospects are that in 1911 the increase in the number of boiler calling for inspection will be greater than was that for 1910. It will be absolutely impossible for three men to do this work, as under the very favorable conditions of the past year we have been unable to answer all the demands made upon us, and the time has come when an additional assistant inspector should be added to this department. With this additional help we can manage to do the work that is before us in much better manner than it has heretofore been attended to. As before stated, the work has been very heavy during the past year. As a concrete example, during this past season one of the inspectors returned from a trip of four weeks' duration, was in the office about five days, and left again on a trip which occupied him from August 5th to September 15th. The work was continuous all of this time, Sundays as well as week days. At one time he reached a city on Saturday night after a week of work in the field, started in at 7 o'clock Sunday morning, inspected 12 boilers during the day and on returning to his hotel found 15 men awaiting examination for license. This work kept him busy until after 2 o'clock the next morning, and he was compelled to start out again on Monday morning to make inspections of boilers which he had previously made arrangements to inspect on that day. At

the same time the other inspectors were all out on the road and were absent for from two to three weeks, and many applicants for license came into the office during that time expecting to find an inspector in attendance. Some of them had come for long distances and at considerable expense, and there was no one here to attend to them. If there were an additional inspector it could be so arranged that some one would be nearly always in the office so that applicants for license could be taken care of and any emergency work which might come up be promptly attended to, so that, at the most, the time when all inspectors would be away could be very much reduced and cases, such as above cited, could receive prompt attention.

Boiler explosions are becoming almost as common as automobile accidents. The latter have now ceased to excite more than a passing comment, and the average individual upon reading an account of one usually dismisses it from his mind with the chance remark: "Well, if they will take the risks they must be prepared for the consequences." The public, however, cannot afford to regard boiler explosions in a similar light. It is a question of vital importance not only to the engineer and fireman but to the public at large, involving the safety of everyone employed in a building in which a steam boiler is in service. When one stops to consider that nearly every large building in the state is equipped with one or more boilers upon whose safe operation hangs the lives of scores of persons, the gravity of the situation is apparent. The necessity for thorough inspection is emphasized by all steam authorities. Commissioner J. D. Beck of the Bureau of Labor and Vital Statistics of Wisconsin has called attention to this matter in no uncertain terms, asking that that state enact especially stringent laws on this subject. I have heretofore called attention to the fact that other states were asking for information from Montana regarding the boiler inspection law, and in Illinois a law has been framed for presentation to the legislature, which follows the Montana law exactly, only such changes having been made as were called for by local conditions. The striking difference in the average number of such explosions in this country and abroad is also being commented on, statistics showing that the average number of such explosions in Germany is 16 per year, in Great Britain, 69 per year, while

in this country it has reached the appalling average of 350 per year. For the year 1909 the total number of explosions was 550, in which 227 persons were killed and 422 injured, a total of killed and injured of 649. This was the most disastrous year ever recorded in the United States. I am very glad to be able to report that during the past year there has not been an explosion among those boilers which come under the inspection law of this state. Statistics show that during the period between January 1st and June 30th, 1910, there were 275 boiler explosions in the United States, resulting in the death of 69 persons, the injuring of 165 others, making a total of 234 persons killed and injured during that six months, and causing a very large damage to property. Among the most disastrous of those explosions I note the following:

On January 31, at the Flint Electric Company's plant, Flint, Mich., two men were killed.

Feb. 5, a boiler next to the one above mentioned exploded, killing one man and injuring four others.

Feb. 10, the boiler in L. L. Princing & Son's sawmill at Crump, Mich., exploded, killing 7 men and injuring 6 others, besides wrecking the mill and Mr. Princing's residence near by.

April 5, boiler in H. H. Meser's stone crushing plant, Mount Carmel, Pa., exploded. The boiler was blown three blocks away over the roofs of a dozen houses, but fortunately no one was injured.

May 17, boiler in the plant of the American Sheet & Tin Plate Co., Canton, Ohio, exploded, killing 13 persons and ininjuring 50 others, and the property loss was many thousands of dollars.

May 15, five boilers exploded at the plant of the Diamond Coal & Coke Co., Chewtown, Pa., killing 3 men and injuring 6 others. Several dwellings were entirely demolished.

June 9, boiler at the plant of the Yellow Pine Lumber Co., Franklinton, La., exploded, injuring 3 men.

Of these 275 boiler explosions, 35 were in heating plants and 4 in school houses. Several of them were explosions of traction engines in use in agricultural work. The wisdom of the annual inspection of the plants known as "Low pressure plants," as well as those boilers carrying high pressure, is thus easily seen, and as these plants are rapidly increasing the

additional labor and responsibility imposed on this department is also increasing.

The department has not only been self sustaining during the past year but has produced a larger nett revenue for the state than ever before in its history. The following table will show the fiscal results of our work from 1893 to 1910:

1893 deficiency	$1,905.21
1894 deficiency	1,519.05
1895 deficiency	1,234.20
1896 deficiency	293.60
1897 to 1900, surplus	3,800.78
1901 surplus	1,747.90
1902 surplus	1,600.90
1903 surplus	2,107.27
1904 surplus	2,355.66
1905 surplus	4,286.20
1906 surplus	5,725.36
1907 surplus	6,363.40
1908 surplus	7,614.05
1909 surplus	8,150.80
1910 surplus	10,811.23

As this money is collected from the owners and users of steam power and the engineers of the state, it would certainly seem that in justice to all concerned this department should be so equipped as to render prompt and efficient service to them at all times.

The Assistant Inspectors, Mr. Richard Moran and Mr. Stephen Parker, have labored faithfully and indefatigably in the performance of their duties and have always been ready to respond to any demands made upon them. I wish to make acknowledgement of their faithful and efficient services. I also with to thank the owners and users of steam plants, as well as the engineers in charge thereof, for many courtesies extended and aid rendered to the assistant inspectors and myself in the discharge of our duties.

Respectfully submitted,

J. H. DAILEY,
State Boiler Inspector.

FINANCIAL STATEMENT FOR THE YEAR ENDING NOVEMBER 30th, 1910.

Receipts.

From appropriations—		
For salaries and expenses	$11,500.00	
Unexpended balance from 1909	147.80	
		$11,647.80
From Office Receipts—		
Licenses issued	$9,034.00	
Boilers inspected	13,425.00	
		22,459.00
Total		$34,106.80

Disbursements.

Salaries and expenses	$11,647.77	
Balance of appropriation unexpended	.03	
		$11,647.80
Amount paid into State Treasury		22,459.00
Total		$34,106.80

Receipts of office	$22,459.00
Expenses of office	11,647.77
Surplus	$10,811.23

In addition to the foregoing, there were fifty boilers inspected the fees for which inspections, amounting to $390.00, had not been paid on November 30th last. Adding these to the work done and paid for would make the statement of work accomplished during the year read as follows:

2021 boiler inspections	$13,815.00
Total of work, paid and unpaid	$22,849.00

In conducting the boiler inspections the total number of miles traveled was 23,306. The number of boilers examined internally and externally was 2,021. In those inspections 2,382 defects were noted, 1,819 of which were considered dangerous and suitable repairs were ordered made. Eleven boilers and 7 mud drums were condemned as unfit for further service and pressure was reduced on 43 boilers. The following is a classified list of defects noted:

Nature of Defect.	Noted.	Dangerous.
Cases of incrustation and scale	347	297
Cases of internal corrosion and pitting	82	82
Cases of external corrosion and pitting	61	61
Broken stays and braces	48	48
Loose and defective stays and braces	43	43
Furnaces defective	27	19
Cracked plates	74	53
Crystallized plates	7	7
Bagged plates	42	42
Defective rivets	287	241
Leaky tubes	1,104	705
Defective setting of water column	17	17
Defective blow-offs	29	29
Safety valves overloaded	41	41
Defective safety valves	15	15
Boilers with cut-off valves between safety valves and boilers	2	2
Defective pressure gauges	115	76
Defective steam pipes and connections	41	41
Total	2,382	1,819